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Sent: Thur 4/14/2016 2:50:24 PM
Subject: [WQ News] A Fracking Fiasco

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A Fracking Fiasco

Posted By Laura Sanchez On April 6, 2016 @ 10:10 am In Water Efficiency Weekly,Water Quality | 18 Comments

Fracking, a fossil-fuel extraction technique in which drilling companies inject high-pressure liquids (frackwater) into the ground to break open rock formations containing oil or gas, is known to have detrimental effects on the environment. Frackwater can contain a myriad of chemicals including benzene and xylene as well as potentially dangerous naturally occurring chemicals. In addition, drilling companies often dispose of this used frackwater fluid in unlined pits. As a result of these practices, fracking has been linked to the presence of toxic compounds in aquifers and groundwater sources.

Fracking is the only industry allowed to inject toxic chemicals into underground sources of drinking water, writes Rob Jordan in a Stanford University press statement [1]. This is an astonishing fact, especially troubling to the many individuals that work to protect our nation's waterways and freshwater resources.

A new study published in *Environmental Science & Technology* [3] confirms that fracking operations near Pavillion, WY, have contaminated underground sources of drinking water and have made it unsafe for consumption. While various organizations have attempted to address the issue in the past seven years, this new study represents the first conclusive, peer-reviewed report. It was directed by former EPA staff member Dominic DiGiulio and Rob Jackson, both currently fellows at Stanford School of Earth, Energy, & Environmental Sciences.

Pavillion is located in Fremont County in central Wyoming. According to EPA reports [4], eight groundwater wells provide municipal water for about 231 residents, while about 80 private water wells are used for drinking water, irrigation, and stock watering.

In 2008, the residents of Pavillion expressed concern over the foul taste and odor of their drinking water. The local EPA office responded to complaints and conducted water samples from March 2009 to April 2011. EPA's federal level team and DiGiulio became involved in January 2010. The Agency collected ground water samples from domestic wells and two municipal wells and detected high concentrations of methane, dissolved

hydrocarbons, and diesel range organics (DRO). In 2011, EPA issued a preliminary draft of a report [5].

Three years later, having never finalized its findings, EPA turned its investigation over to the State of Wyoming. The state released a series of reports without firm conclusions and the investigation stalled.

In the new study published March 29, 2016, DiGiulio and Jackson build upon the 2011 EPA report by documenting the occurrence of fracking chemicals in underground sources of drinking water and addressing their impact on groundwater quality. The report further suggests that the entire groundwater resource in the Wind River Basin may be contaminated with chemicals linked to hydraulic fracturing.

According to data gathered by EPA and consolidated in the report, thousands of gallons of water and chemicals were injected at high pressure into the wells. DiGiulio says that about 10% of the mixture contained methanol, a simple alcohol that can trigger permanent nerve damage and blindness in humans if consumed in sufficient amounts.

"Geologic and groundwater conditions at Pavillion are not unique in the Rocky Mountain region," says DiGiulio in a press statement [1]. "This suggests there may be widespread impact to underground sources of drinking water as a result of unconventional oil and gas extraction."

The study will likely have implications beyond Wyoming, since states like California, Colorado, Montana, and North Dakota all have relatively shallow fracking operations and could find that their water sources are contaminated as well.

"This is a wake-up call," says DiGiulio. "It's perfectly legal to inject stimulation fluids into underground drinking water resources. This may be causing widespread impacts on drinking water resources."

What are your thoughts?WE

URLs in this post:

[1] **Rob Jordan in a Stanford University press statement**:
http://news.stanford.edu/news/2016/march/pavillion-fracking-water-032916.html

[2] Stormwater Solutions Funding: Successfully Establishing a Stormwater Management Utility:
http://foresternetwork.com/free-reports/stormwater-solutions-funding-successfully-establishing-stormwater-management-utility/

[3] ***Environmental Science & Technology***: **http://pubs.acs.org/journal/esthag**

[4] **EPA reports**: **https://www.epa.gov/region8/pavillion**

[5] **draft of a report**:
https://www.epa.gov/sites/production/files/documents/EPA_ReportOnPavillion_Dec-8-2011.pdf

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